The Ribblesdale Federation of Schools
Design Technology Curriculum Handbook Year C

Design and Technology

Aim:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook. (2014 N.C)

Intent

At the Ribblesdale Federation of Schools, we intend to build a Design Technology curriculum which develops learning and results in the acquisition of knowledge and skills. Children will know more, remember more and understand more.

We intend to design a design technology curriculum with appropriate subject knowledge, skills and understanding as set out in the National Curriculum Design Technology Programmes of study, to fulfil the duties of the NC whereby schools must provide a balanced and broadly-based curriculum which promotes the spiritual, moral, cultural, mental and physical development of pupils and prepares them for the opportunities and responsibilities and experiences for later life

EYFS

This subject leader handbook is for the national curriculum. There is a separate EYFS handbook which shows the EYFS long-term curriculum. The EYFS curriculum is holistic and therefore a number of areas of learning will link to this subject and support children to be immersed in Design Technology.

Implementation

Clear and comprehensive scheme of work in line with the National Curriculum. The Design Technology National Curriculum and EYFS is planned for and covered in full within the EYFS, KS1 and KS2 school curriculum. Whilst the EYFS and National Curriculum forms the foundation of our curriculum, we make sure that children learn additional skills, knowledge and understanding and enhance our curriculum as and when necessary.

Delivery of design and technology projects with a clear structure. Each class will undertake a construction topic, a textile topic and a food/drink topic.

Projects follow the design process where each project fulfils the following: research, design, make and evaluate.

Each class has a garden plot/ planter and takes ownership and responsibility for cultivating the relevant crops.

A range of skills will be taught ensuring that children are aware of health and safety issues related to the tasks undertaken

Clear and appropriate cross curricular links to underpin learning in multi areas across the curriculum giving the children opportunities to learn life skills and apply skills to 'hands on' situations in a purposeful context.

Children will undertake design tasks and use skills from across the curriculum to fully explore the design process evaluating work ensuring that it is of the highest possible quality. These project books will be thoroughly assessed against the curriculum objective. Children are also asked to self-evaluate their work.

Design Technology displays in every school alongside the three-dimensional creations. These displays celebrate exceptional practice and exemplify terminology and vocabulary used.

Independent learning: In design technology children may well be asked to solve problems and develop their learning independently. This allows the children to have ownership over their curriculum and lead their own learning in Design Technology.

Collaborative learning: In design and technology children may well be asked to work as part of a team, learning to support and help one another in order to achieve challenging, yet rewarding goal.

Impact

Children will have a clear enjoyment and confidence in design and technology that they will then apply to other areas of the curriculum.
Children will ultimately know more, remember more and understand more about Design Technology, demonstrating this knowledge when using tools or skills in other areas of the curriculum and in opportunities out of school.
The large majority of children will achieve age related expectations in Design Technology.
As designers' children will develop skills and attributes they can use beyond school and into adulthood.

Design and Technology

Year 1 (A)	Windmills (Yr1 Structure)	Soup (Yr R nutrition)	Moving Pictures (Yr 1 Mechanisms)
Year 1 (B)	Bookmarks (Yr 1 textiles)	Smoothies (Yr 1 nutrition)	Wheels and Axles (Yr 1 Mechanisms)
Year 2 and 3 (A)	Purses (Yr2 Textiles)	Packed Lunch (Nutrition)	Castles (Yr 3 Structures)
Year 2 and 3 (B)	Electric Poster (Yr 3 Electrics)	Eating seasonally (Yr3 Nutrition)	Fairground Wheel (Y2 Mechanisms)
Year 4, 5 and 6 (A)	Stuffed Toys (Yr5 Textiles)	Sling Shot Cars (Yr4 Mechanical)	Come Dine with Me (Yr6 Food)
Year 4, 5 and 6 (B)	Mindful Moments (Yr 4 Digital World	Adapting a recipe (Yr 4 nutrition)	Doodler (Yr 5 Electrics)
Year 4, 5 and 6 (C)	Fastenings (Yr 4 Textiles)	Bridges (Yr 5 Structures)	Navigating the World (Yr 6 Digital)

Year 4, 5 and 6 Topics

Fastenings – Class 3

In Year 4, 5 and 6

Skills will include

Writing design criteria for a product, articulating decisions made.

Designing a personalised book sleeve.

Making and testing a paper template with accuracy and in keeping with the design criteria.

Measuring, marking and cutting fabric using a paper template.

Selecting a stitch style to join fabric.

Sewing neatly using small regular stitches.

Incorporating a fastening to a design.

Testing and evaluating an end product against the original design criteria.

Knowledge gained will include:

To know that a fastening is something that holds two pieces of material together.

To know that different fastening types are useful for different purposes.

To know that creating a mock-up (prototype) of their design is useful for checking ideas and proportions.

Bridges – Class 3

In Year 4, 5 and 6

Skills will include

Designing a stable structure that is able to support weight.

Creating a frame structure with focus on triangulation.

Making a range of different shaped beam bridges.

Using triangles to create truss bridges that span a given distance and support a load.

Building a wooden bridge structure.

Independently measuring and marking wood accurately.

Selecting appropriate tools and equipment for particular tasks.

Using the correct techniques to saw safely.

Identifying where a structure needs reinforcement and using card corners for support.

Explaining why selecting appropriate materials is an important part of the design process.

Understanding basic wood functional properties.
Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary.

Suggesting points for improvements for own bridges and those designed by others.

<u>Knowledge gained will include</u>:
To understand some different ways to reinforce structures.

To understand how triangles can be used to reinforce bridges.

To know that properties are words that describe the form and function of materials.

To understand why material selection is important based on their properties.

To understand the material (functional and aesthetic) properties of wood.

Navigating the World – Class 3

In Year 4, 5 and 6

Skills will include

Writing a design brief from information submitted by a client.

Developing design criteria to fulfil the client's request.

Developing a product idea through annotated sketches.

Placing and manoeuvring 3D objects, using CAD.

Changing the properties of, or combine one or more 3D objects, using CAD.

Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo).

Explaining material choices and why they were chosen as part of a product concept.

Programming an N,E, S,W cardinal compass.

Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool.

Developing an awareness of sustainable design.

Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch.

Demonstrating a functional program as part of a product concept.

Knowledge gained will include:

To know that accelerometers can detect movement.

To understand that sensors can be useful in products as they mean the product can function without human input.

To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request.

To know that 'multifunctional' means an object or product has more than one function.

To know that magnetometers are devices that measure the Earth's magnetic field to determine which direction you are facing.

Agreed End Points

Lower Key Stage Two

DT	Year Three	Year Four
Developing, planning and communicating ideas.	•Generate ideas for an item, considering its purpose and the user/s •Identify a purpose and establish criteria for a successful product. •Plan the order of their work before starting •Make drawings with labels when designing •	•Generate ideas, considering the purposes for which they are designing •Make labelled drawings from different views showing specific features • Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail •Evaluate products and identify criteria that can be used for their own designs
Working with tools, equipment, materials and components to make quality products (inc-food)	• Measure, mark out, cut, score and assemble components with more accuracy •Work safely and accurately with a range of simple tools •Think about their ideas as they make progress and be willing change things if this helps them improve their work •Measure, tape or pin, cut and join fabric with some accuracy •Demonstrate hygienic food preparation and storage	•Select appropriate tools and techniques for making their product •Measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques •Join and combine materials and components accurately in temporary and permanent ways •Sew using a range of different stitches, weave and knit • Measure, tape or pin, cut and join fabric with improving accuracy.

Evaluating processes and products	•Evaluate their product against original design criteria *e.g. how well it meets its intended purpose* •Disassemble and evaluate familiar products	•Evaluate their work both during and at the end of the assignment • Evaluate their products carrying out appropriate tests

Agreed End Points

Upper Key Stage Two

DT	Year Five	Year Six
Developing, planning and communicating ideas.	•Generate ideas through brainstorming and identify a purpose for their product •Draw up a specification for their design •Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail	•Communicate their ideas through detailed labelled drawings •Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways •Plan the order of their work, choosing appropriate materials, tools and techniques
Working with tools, equipment, materials and components to make quality products (inc-food)	•Measure and mark out accurately •Use skills in using different tools and equipment safely and accurately •Weigh and measure accurately (time, dry ingredients, liquids) •Apply the rules for basic food hygiene and other safe practices *e.g. hazards relating to the use of ovens*	•Select appropriate tools, materials, components and techniques •Assemble components make working models •Construct products using permanent joining techniques •Make modifications as they go along •Pin, sew and stitch materials together create a product •

Evaluating processes and products	•Evaluate a product against the original design specification •Evaluate it personally and seek evaluation from others •	•Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests •Record their evaluations using drawings with labels •Evaluate against their original criteria and suggest ways that their product could be improved •